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Atty Dkt No. GP-303632 (GM-0432PUS)

Remarks

Claims 1-15 are pending in this application. Claims 1-5 and 13 were rejected under 35 USC §102(b) as being anticipated by Morelli et al. (5,820,203). Claims 6-15 were rejected under 35 USC §103(a) as being unpatentable over Morelli et al. in view of O'Connell et al. (6,223,843). Claims 7, 12 and 13 are currently amended.

Claim Rejections - 35 U.S.C. § 102(b)

Claims 1-5 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Morelli et al. For a rejection to be proper under 35 U.S.C. §102(b), every element and limitation found in the rejected claim must be found in the 102(b) reference. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co. of California*, §14F.2d628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also, MPEP §2131.

Generally speaking, the Examiner is incorrect when he states that Morelli et al. teach a device having

the conduit (5)... spaced sufficiently from any normal abutment on the support surface to avoid the abutment and operable to project a curtain of air from the forward end toward the support surface -- . (underline added for emphasis).

The Examiner makes reference to column 5, lines 44-67; however, this reference is nonexistent in Morelli et al. as column 5 has only 26 lines. The Examiner also refers to Figure 3. However, ports (9) in Figure 3 of Morelli et al. project air rearwardly and slightly upwardly, rather than "toward said support surface" as recited in claims 1-5. Thus, Morelli et al. do not teach a conduit operable to project a curtain of air from the forward end of the vehicle toward a support surface. Rather, Morelli et al. teach that the flow leaving the distributor (9) may be ejected into

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uniformity with the flow which sweeps along the other surfaces of the vehicle, not "toward the support surface with sufficient flow and direction to form a virtual airdam" as recited in claims 1-5. Figures 5-7 of Morelli et al. have been reproduced below solely for illustrative purposes. As Morelli et al. teach,

The flow leaving the distributor 9 is enriched with energy by the work performed by all of the rotating fin sets and blade sets of the wheel and is capable of transferring, by ejection, some of its energy to the air flow affecting the bottom of the vehicle...

FIG. 5

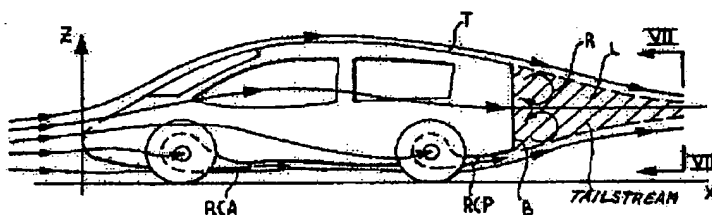


FIG. 6

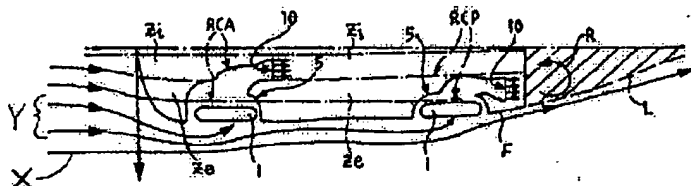
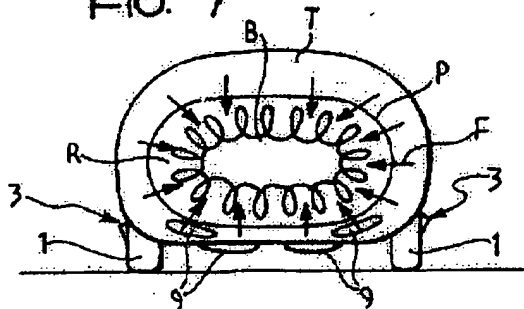


FIG. 7



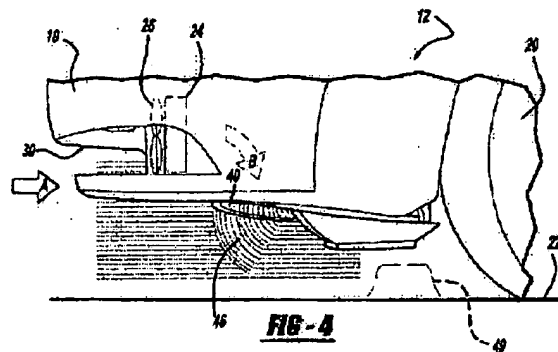
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To be more precise, with reference to [Morelli et al.'s] FIGS. 5 to 7 in which three views of a monovolume motor vehicle are shown by way of example, it can be seen that each wheel-conveyor unit, such as RCA and RCP, affects its own limited area of the bottom, the zones Zi and Ze, respectively, with the aim of rendering uniform the energetic potential of the air flow which is about to become separated from the surface of the bottom in the area of the rear truncated portion B.

The dimensioning of the entire system according to the invention is preferably such as also to render the above-mentioned energetic potential uniform with the flow which sweeps along the other surfaces of the vehicle, the side panels F and the roof T, the trace of which, with the surface of the truncated portion, defines the perimeter P thereof. (underline added for emphasis) (col. 3, lines 56-60 and col. 4, lines 1-13).

Applicants' Figure 4 has been reproduced below solely for illustrative purposes.



Rather than "project[ing] a curtain of air [46] from said forward end toward said support surface" (22) as shown in Applicants' Figure 4 and described at paragraph [0019], Morelli et al. teach a

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vacuuming function in which air is transferred to be "uniform with the flow which sweeps along the other surfaces of the vehicle". Morelli et al. do not teach a conduit "operable to project a curtain of air from said forward end toward said support surface with sufficient flow and direction to form a virtual airdam --" as recited in claim 1. Therefore, Morelli et al. do not anticipate claim 1.

Claims 2-5 ultimately depend from claim 1 and are therefore believed to distinguish Morelli et al. for at least the same reasons given in support of claim 1.

Claim 13 has been currently amended to define the invention more particularly over Morelli et al. Specifically, amended claim 13 recites

A virtual airdam assembly for a movable support on a roadway and comprising an elongated conduit configured to be supportable on the underside of a front end portion of the movable support, said conduit configured to extend transversely across said front end portion and having an inlet opening configured for receiving air and an outlet opening configured to project a jet of air in a downward direction toward said roadway, whereby to form a virtual airdam with the air received to reduce drag on the movable support. (underline added for emphasis)

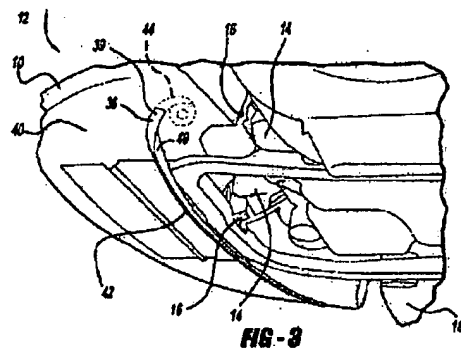
Morelli et al. teach that

each wheel-conveyor unit, such as RCA and RCP, affects its own limited area of the bottom, the zones Zi and Ze, respectively -- (col 4, lines 3-5) (underline added for emphasis)

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While the Morelli device is *limited* to designated areas (Zi and Ze as shown in Figure 6), Applicants' conduit (40) substantially extends transversely across the forward end of the vehicle as illustrated in Figure 2 which is reproduced below solely for illustrative purposes.



This limitation or structure is not included in Morelli et al. Moreover, claim 13 is believed to distinguish Morelli et al. for at least the same reasons given in support of claim 1. Thus, Morelli et al. do not anticipate amended claim 13.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 6-15 were rejected under 35 USC §103(a) as being unpatentable over Morelli et al. in view of O'Connell et al. (6,223,843). A proper rejection under 35 U.S.C. § 103(a) requires that the Examiner establish *prima facie* obviousness. As recited in the MPEP, "[t]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness." MPEP § 2142. Three basic criteria must be met to establish *prima facie* obviousness. MPEP § 2143. First, there must be some suggestion or motivation to modify a reference or combine teachings. *Id.* Second, there must be reasonable expectation of success. *Id.* Third, the prior art reference or references must teach or suggest all the claim limitations. *Id.*

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Claim 6 depends from claim 1 and is believed to distinguish Morelli et al. for at least the same reasons given in support of claim 1. O'Connell et al., like Morelli et al., do not show or suggest a vehicle conduit which is spaced to avoid normal abutments and "operable to project a curtain of air from said forward end [of the vehicle] toward said support surface [for the vehicle]" (underline added).

Claim 7 is currently amended so that the "conduit spaced from a support surface" as shown in Figure 3 is: "substantially extending transversely across the forward end of the vehicle..." in addition to being: "operable to project a curtain of air from said forward end toward said support surface --". As discussed above, Morelli et al. fail to teach either limitation. Neither does O'Connell et al. Moreover, Morelli et al. teach away from a device incorporating these limitations.

First, Morelli et al. teach transferring the flow leaving the distributor in a manner to be uniform with the flow which sweeps along the other surfaces of the vehicle.

The flow leaving the distributor 9 is enriched with energy by the work performed by all of the rotating fin sets and blade sets of the wheel and is capable of transferring, by ejection, some of its energy to the air flow affecting the bottom of the vehicle...

To be more precise, with reference to FIGS. 5 to 7 in which three views of a monovolume motor vehicle are shown by way of example, it can be seen that each wheel-conveyor unit, such as RCA and RCP, affects its own limited area of the bottom, the zones Zi and Ze, respectively, with the aim of rendering uniform the energetic potential of the air flow which is about to become separated from the surface of the bottom in the area of the rear truncated portion B.

The dimensioning of the entire system according to the invention is preferably such as also to render the above-mentioned energetic potential uniform with the flow which

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sweeps along the other surfaces of the vehicle, the side panels F and the roof T, the trace of which, with the surface of the truncated portion, defines the perimeter P thereof. (underline added for emphasis) (col. 3-4, lines 56-13).

Applicants' "conduit," however, is "operable to project a curtain of air from said forward end toward said support surface with sufficient flow and direction to form a virtual airdam sufficiently to reduce vehicle drag." It would be contrary to the teachings of Morelli et al. (or O'Connell et al.) to dam (or obstruct) the flow of air toward a surface supporting a vehicle *and* transfer the air flow so that it sweeps along a surface of the vehicle. While Morelli et al. teach projecting the air along vehicle surfaces, Applicants' claim projecting the air toward a support surface, i.e., *away* from the vehicle. The two are opposing concepts thus reflected by their dissimilar structural arrangements. See Applicants' Figure 4 versus Morelli et al.'s Figures 5-7 (reproduced above solely for illustrative purposes).

Second, Morelli et al. explicitly teach away from a conduit "substantially extending transversely across the forward end of the vehicle" as recited in amended claim 7. Rather, Morelli et al. teach that each wheel-conveyor unit will project air to only a limited area of the vehicle bottom, specifically zones Zi and Ze.

each wheel-conveyor unit, such as RCA and RCP, affects its own limited area of the bottom, the zones Zi and Ze, respectively... (col 4, lines 3-5) (underline added for emphasis)

Morelli et al. teach this because their device is configured to project air in a manner to be "uniform with the flow which sweeps along the other surfaces of the vehicle". (col. 3-4, lines 56-13). Applicants' conduit (40), however, is configured "to project a curtain of air from said forward end toward said support surface with sufficient flow and direction to form a virtual airdam --" as recited in claim 7. Applicants' conduit (40) clearly extends across the forward end of the vehicle to achieve the virtual airdam as recited in claim 7 and reflected in Applicants' Figure 3 which has been reproduced above for illustrative purposes. For proper rejection under

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§103(a) every element and every limitation must be presented by the Examiner. MPEP §2131. Clearly, this is not the case since the primary reference provided teaches away from the subject matter presented in amended claim 7. Claims 8-11 ultimately depend from amended claim 7 and are believed to be non-obvious over Morelli et al. and O'Connell et al. for at least the same reasons that claim 7 is non-obvious.

Claim 12 is currently amended to define a method of reducing drag and for cooling a moving vehicle's engine compartment by: "forming an air conduit substantially across the forward end of said vehicle to form a jet-forming outlet positioned to direct the air in a downward direction – toward said vehicle support; –" (underlining added). This method is described, *inter alia*, at paragraphs [0019] and [0020].

Claim 13 and ultimately dependent claims 14 and 15 are currently amended to call for a virtual airdam assembly for a movable support on a roadway which comprises:

an elongated conduit -- configured to extend transversely across [a] front end portion [of the moveable support] and having an outlet opening configured to project a jet of air in a downward direction toward said roadway --

As foresaid, Morelli et al.'s conduits (9) are localized at each wheel and are configured to project air rearwardly and slightly upwardly, rather than "downward – to form a virtual airdam" and O'Connell et al. are silent as to airdams or transversely extending conduits.

As to claim 6 which depends from claim 1 and claim 11 which ultimately depends from claim 7, it is not at all clear that locating O'Connell et al.'s radiator (62) in Morelli et al.'s Figure 6 would result in the radiator's "source of air" being the same as the "conduit(s) (9)." O'Connell et al.'s radiator 62 is located on the longitudinal axis in the center of their vehicle, whereas the Morelli et al.'s conduits or outlets (10) at each of Morelli et al.'s wheels are outboard of

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the center of the Morelli et al. vehicle. Thus, positioning O'Connell's radiator (62) in Morelli et al.'s Figure 6 would still place the radiator in Morelli et al.'s central source of air flow (marked X herein) rather than in an outboard source of air flow (marked Y herein). In sum, the combination of O'Connell et al. with Morelli et al. still lacks:

- a) a "conduit having a source of air" and "a radiator in air flow communication with said source of air — and a shroud connected to said source of air and configured to form the conduit." (claim 6)

or

- b) a "conduit substantially extending transversely across the forward end of [a] vehicle" and a radiator "in air flow communication" with the conduit's "source of air." (claim 11)

Since each and every element and limitation is not present in the provided references, claims 6-15 are believed to be non-obvious over Morelli et al. in view of O'Connell et al.

CONCLUSION

This Amendment is believed to be fully responsive to the Office Action mailed May 24, 2005. The prior art made of record and not relied upon has been considered. The remarks in support of the rejected claims are believed to place this application in condition for allowance, which action is respectfully requested.


Please charge any fees associated with this amendment to deposit account 07-0960.

Respectfully submitted,

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